# **ANNEX B**

# NON-MEDICAL FORCE PROTECTION PROGRAMS

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### SECTION 1: FIELDED AND PRODUCTION ITEMS

### Respiratory



### **M17A2 Protective Mask**

The M17A2 Protective Mask consists of a natural blend rubber face piece; two activated charcoal filters mounted within cheek pouches; a voicemitter to facilitate communications, a drinking tube; eyelens outserts to protect the mask's integral eyelens and reduce cold weather fogging; an impermeable hood; and a carrier for the mask, its components, and medical items (such as the Nerve Agent Antidote Kit). The Army and Marine Corps are replacing this mask with the M40 protective mask. The Air Force and Navy have replaced it with the MCU-2A/P.

### **ABC-M24 Aircraft Protective Mask**

This protective mask provides the wearer protection from NBC aerosols/vapors both in aircraft, and on the ground. The mask consists of: wide view, clear plastic lens embedded in a butyl rubber face blank; an integral microphone; eyelens outserts; carrying case; anti-fog kit; and a hose mounted filter canister. The mask has a microphone connection to fit the aircraft communications systems. The M24 has an adapter that allows coupling to the aircraft's oxygen supply system. The M24 is being replaced by the M49 and XM45 masks.

### **M25A1 Tank Protective Mask**

This protective mask provides the wearer protection from NBC aerosols/vapors both in the vehicle/aircraft, and on the ground. The mask consists of: wide view, clear plastic lens embedded in a butyl rubber face blank; an integral microphone; eyelens outserts; carrying case; anti-fog kit; and a hose mounted filter canister. The mask has a microphone connection to fit the armored vehicle communications systems. The M25A1 has an adapter that allows it to be coupled to the tank's filtered and temperature controlled Gas Particulate Filtration Unit (GPFU). The M25A1 is being replaced by the M42/M42A1/M42A2 protective mask.

### MCU-2A/P Protective Mask

The MCU-2A/P provides eye and respiratory protection from all chemical and biological agents as well as radioactive particulate material. The mask uses a replaceable, standard NATO filter canister which is mounted on either side of a wide-view optical quality visor. The mask provides improved fit, comfort, and visibility relative to earlier masks, and includes a drinking tube for attachment to the standard canteen, and voicemitter for improved communications.

### M40/42 Series Protective Mask



The M40/42 protective masks provide eye-respiratory face protection from tactical concentrations of CB warfare agents,

toxins and radioactive fallout particles. The mask consists of a silicone rubber face piece with an in-turned peripheral face seal and binocular rigid lens system. It accommodates NATO

standard canisters which can be worn on either cheek of the mask. The M40 is designed for the individual dismounted ground warrior, while the M42 is designed for combat vehicle crewmen. Recent improvements include a second skin hood and laser-safe eye lens outserts.



### **M43 Protective Mask**



The M43 Aviator Mask consists of a form-fitting face piece with lenses mounted close to the eyes; an integral CB hood and skull-type suspension system; an inhalation air distribution assembly for air flow regulation, lenses and hood; and a portable motor/blower filter assembly which operates on either battery or aircraft power. The M43 Type I was developed for the AH-64 aviator

and is compatible with the AH-64 Integrated Helmet and Display Sight System and the Optical Relay Tube. The M43 Type II is intended for the general aviator.

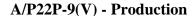
### M48/49 Protective Masks - Production

The M48/M49 are third generation M43 series masks. The M48 mask replaces the M43 Type I mask and will be the only mask for the Apache aviator for the foreseeable future. The M49 mask, along with the XM45 mask will replace the M24 and M43 Type II masks. The M48 and M49 masks consist of a lightweight motor blower, a new hose assembly, a web belt, the mask carrier, facepiece carrier, eyelens cushions, and the facepiece of the M43A1. The M49 mask will be replaced in the mid-term by the XM45 Aircrew Protective Mask which does not require a motor blower unit.



# **Aircrew Eye/Respiratory Protection (AERP)**

The AERP (replaces the MBU-13/P system for aircrews) is a protective mask which enables aircrews to conduct mission operations in a chemical-biological environment. The AERP system includes a protective hood assembly with a standard MBU-12/P mask, an intercom for ground communication, and a blower assembly that provides de-misting. The blower is stowed during flight operations on a bracket that is mounted inside the aircraft.





The A/P22P-9(V) provides head-eye-respiratory protection via the MCK-3/P respirator and CQK-8/P tactical ventilator for "helo" crews. The ensemble, which utilizes a blower to provide positive pressure, has anti-drown features and provides system compatibility with a large variety of aircraft. In FY96, the ensemble was upgraded with a rip away face plate, and improved tactical ventilator with a smaller man-mounted pusher fan.

# **Ancillary Mask Equipment**

# **M41 Protection Assessment Test System**



The M41 Protective Assessment Test System (PATS) enhances operational capability by validating proper fit of the mask to the face of the individual. The PATS is a new capability that provides a simple, rapid, and accurate means of validating the face piece fit of protective masks.

### **Voice Communication Adapter**

The Voice Communication Adapter (VCA) is a low risk program providing additional capability to the M40/42 mask. The VCA is a joint program between the USMC and US Army.

### **Universal Second Skin**

The Universal Second Skin is one of the components of a pre-planned product improvement in the M40/M42 series mask. This program is a Joint U.S. Army/U.S. Marine Corps effort. Both developed prototype designs and, after field user and human engineer testing, the Marine Corps design was selected as the best. The Air Force is developing a second skin for the MCU-2A/P.

### **Battlefield Protective Suits**

### **Battle Dress Overgarment (BDO)**

The BDO is a camouflage patterned (desert or woodland), two piece, air permeable overgarment typically worn over the duty uniform. The overgarment material consists of an outer layer of nylon cotton, and an inner layer of charcoal impregnated polyurethane foam. The BDO provides protection against chemical agent vapors and liquid droplets, biological agents (to include toxins), and radioactive alpha and beta particles. The BDO is issued in a sealed vapor-barrier bag that protects the garment from rain, moisture and sunlight. The BDO provides chemical protection for 22 days (extendible by commanders with increased risk to the wearer), and should be replaced within 24 hours of contamination by liquid chemical agents.

# Chemical Protective (CP) Suit, OG MK-III (Navy Suit)

The Chemical Protective Overgarment (CPO) protects the wearer against all known chemical and biological agents which present a percutaneous hazard. The suit consists of a smock and separate pair of trousers, and is sized to accommodate the 5 percentile female through the 95 percent male ratio. This garment will be replaced Navy-wide beginning in calendar year 1997 by a superior suit developed under the auspices of the Joint Service Lightweight Integrated Suit Technology (JSLIST) program. The Mark III chemical, biological, radiological (CBR) suit protects against chemical agent vapors, aerosols, droplets of liquid, and biological agents. The suit consists of separate smock and trousers in addition to gloves and overboots.

### CP Suit, Saratoga (USMC)

Like the BDO, the SARATOGA CP Suit is an air permeable, camouflage patterned overgarment. Instead of carbon impregnated foam, SARATOGA uses spherical, activated carbon adsorbers immobilized in the liner fabric. This system allows for a lighter, cooler garment. The carbon spheres are also specially treated to minimize water absorption, resulting in a garment that is practically insensitive to humidity and perspiration, and allows for repeated laundering of the garment.

### **CWU-66/P Aircrew Ensemble - Production (FUE FY96)**

The CWU-66/P, a one-piece flightsuit configuration, provides 24-hour protection against standard NATO threats. It is made with Von Blucher carbon spheres, and is less bulky than prior ensembles. It offers a reduced thermal load burden and is compatible with aircrew life support equipment.

### **Chemical Protective Undergarment (CPU)**

The CPU is a two-piece lightweight undergarment made of a non-woven fabric with activated charcoal. When worn under the combat vehicle crewmen (CVC) coverall, battle dress uniform (BDU), the CPU provides 12 hour protection at NATO standards after moderate non-NBC field wear and one laundering.

# Aircrew Uniform, Integrated Battlefield (AUIB)

The AUIB is a two-piece duty uniform which provides aircrew with flame and CB protection in a single uniform. It provides 24 hour protection at NATO standards after moderate wear. The AUIB, which replaces the BDO for aircrew, is worn over the Nomex flight suit. The outer shell is a laminate of 95/5 Nomex/Kevlar and polytetrafluoroethylene film. The inner layer is a laminate of carbon impregnated, flame resistant polyurethane foam and nylon knit. The AUIB is compatible with life support equipment used in rotor-winged aircraft and with developmental cooling vests.

### **Specialty Suits**

# **Suit Contamination Avoidance Liquid Protection (SCALP)**

The SCALP is a lightweight overgarment which provides liquid splash protection to undergarments. The SCALP, which consists of a jacket with hood and trouser, is made from a blend of Gore-tex and butyl rubber-coated nylon.

### **Interim-Self Contained Toxic Environment Protective Outfit - (STEPO-I)**

Approved as an interim system for 2-hour depot operations in Immediate Danger to Life and Health (IDLH) environments. It consists of encapsulating suit made of butyl rubber-coated nylon with a polycarbonate visor. Respiratory protection is provided by one of two optionstethered clean air supply or a self-contained rebreather worn as a back-pack. Cooling is provided by an ice vest worn underneath the suit.

# **Protective Accessories**

### **Green/Black Vinyl Overboots (GVO/BVO)**

The GVO/BVO are fitted vinyl overshoes that can be used by the wearer for protection against nuclear agents, biological agents, chemical agents, or foul weather. The impermeable GVO/BVO provide protection against all known chemical agents for up to 14 days and should be replaced within 12 hours of contamination by a liquid agent (extendible by commanders to 24 hours with increased risk to wearer). The GVO/BVO may be decontaminated to extend their usefulness.

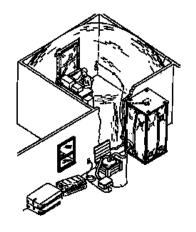
### **CP Gloves**

The CP glove set consists of a butyl-rubber outer glove for protection from chemical agents, and a cotton inner glove for perspiration absorption. CP outer gloves come in three thicknesses: 7, 14, and 25 mil. The 7 mil glove is used by personnel who require a high degree of tactility, such as medical and personnel engaged in electronic equipment repair. The 14 mil glove is used by personnel like aviators and mechanics, in cases when good tactility is necessary and stress to the glove is not too harsh. The 25 mil glove is used by personnel who require a durable glove to perform close combat tasks and heavy labor. The 14 and 25 mil glove sets will provide protection for at least 24 hours, and can be decontaminated to extend their usefulness. The 7 mil glove set should be replaced within 6 hours of exposure to a chemical agent.

# **Collective Protection Equipment**

### M51 Protective Shelter, CB

The M51 shelter is a trailer mounted system that consists of the following major components: a 10 man shelter, a protective entrance, and a support system. The shelter and protective entrance support themselves through air filled ribs. The protective entrance minimizes carry-over of vapor contamination from outside to inside the shelter, and paces entries to the shelter to prevent loss of shelter over-pressure. The air handling system is permanently mounted in the trailer, and provides forced, filtered, and environmentally conditioned air to the shelter. The M51 is mostly used by battalion aid stations and other medical units. It can also be used as a temporary rest and relief shelter. The Marine Corps has recently fielded a stand-alone collective protection shelter (The Portable Collective Protection Shelter). This system can be erected and employed by 4-6 personnel in approximately one hour. This system provides heat stress relief from the effects of MOPP for 12-14 personnel.



# **M20 Simplified Collective Protective Equipment**

The M20 SCPE is used to convert an interior room of an existing structure into a positive overpressure, NBC collective protection shelter where individuals can perform assigned missions without wearing the protective mask and overgarment. The system consists of a liner, protective entrance, filter canister, and support kit.

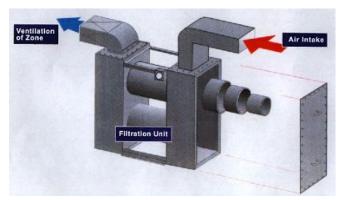
# M20A1/M28 Simplified CPE (SCPE)

The SCPE is a low cost method of transforming a room of an existing structure into an NBC collective protection shelter for command, control and communication (C³) and soldier relief functions. M20A1 is a room liner for existing shelters; M28 is a liner for the TEMPER tent. Components include a CB vapor resistant polyethylene liner that provides a protected area in an existing structure; a collapsible, protective entrance that allows entry to/exit from the protected area; a hermetically sealed filter canister that provides filtered air to both the liner and the protective entrance; and a support kit that contains ducting, lighting, sealing and repair material and an electronically powered blower. A pre-planned product improvement (P³I) program to the SCPE (M20A1/M28) provides liquid agent resistant liners, protective liners for tents, interconnectors, and an interface with environmental control units. The improved SCPE also allows more people to enter at one time, and protects hospitals under tents.

# **Shipboard Collective Protection System - Production**

Shipboard CPS is an integral part of the HVAC systems on new construction ships. CPS provides each protected zone on the ship with filtered air at an overpressure of 2.0 inches Hg. CPS is modular and is based on a Navy-improved version of the 200 cfm M56 filter. CPS includes filters, filter housings, high pressure fans, airlocks, pressure control valves, low pressure alarm system, and personnel decontamination stations.

# **Selected Area Collective Protection System - Production**



Selected Area CPS (SACPS) is designed to be easily adaptable to current ships to provide selected spaces (*i.e.*, command and control, berthing areas, *etc.*) with an affordable CPS system. SACPS is modular and is based on a Navy-improved version of the 200 cfm M56 filter. SACPS is easily integrated into the ship's existing HVAC system, and includes filters, filter housings, a high pressure fan,

an airlock, a pressure control valve, and a low pressure alarm system.

# **CB Protected Shelter (CBPS) - Production**

The CB protected shelter provides collective protection (300 sq. ft.) for medical and selected combat, combat support, and combat service support personnel to perform missions in a CB environment. The CB protected shelter is highly mobile, and easy to set up and take down to accommodate the dynamic integrated battlefield.



# Gas particulate Filters; M48, M56, M1A1-19, M2A2

Gas Particulate filters remove toxic gas and dust from air supplied to collective protection systems and armored vehicle overpressure systems.

# **SECTION 2: RDTE ITEMS**

# **Integrated**

### **Force XXI Land Warrior**

#### Rationale:

Army (Requirement) Navy, Air Force, Marine Corps (Interest)

### **Key Requirements:**

- Protection from all threats for the individual, to include NBC threats
- Integrated vision, communication, and locator systems and enhanced equipment interface

### Description:

The Force XXI Land Warrior (formerly, the 21st Century Land Warrior) is an integrated soldier defense system which will improve the warfighter's combat system interface and ability to detect, recognize, and destroy enemy soldiers and equipment. Monitor and protection systems are integrated into a full body ensemble along with advanced locations, communications, microcomputer, and vision systems to maximize the warfighter's battlefield awareness, survivability, and lethality.

# Respiratory

# CB Respiratory System (A/P23P-14(V)N) NDI

### Rationale:

Navy, Marine Corps (Requirement)

# **Key Requirements:**

• CB protection compatible with all aircraft system; integral respirator and protective ensemble

### Description:

The A/P23P-14(V)N is a self contained protective ensemble designed for all forward deployed fixed wing (USN/USMC) and rotary wing (USN) aircrew. The design will incorporate filter dual air/oxygen supply and a cross-over manifold with ground flight selector switch to provide filtered air for hood ventilation, and filtered air for oxygen for breathing. The system will provide enhanced protection and offer anti-drown features.

### M45 Aircrew Protective Mask (ACPM) (FUE FY98)

### Rationale:

Army (Requirement) Navy, Air Force, Marine Corps (Interest)

# **Key Requirements:**

- Unpowered protection compatibility with optical sighting systems
- Reduced weight, cost and logistic burden
- Improved RAM

# Description:

The ACPM will have close fitting eyelenses mounted in a silicone rubber facepiece with an in-turned peripheral seal, a detachable hood system, and a detachable motor blower assembly to reduce the inhalation burden. The mask will provide the required CB protection with or without forced ventilated air, and is compatible with aircraft sighting and night vision devices.



### **Battlefield Protective Suits**

# Joint Service Lightweight Integrated Suit Technology (JSLIST)

The JSLIST program is a fully cooperative RDTE effort chartered to develop new CB protective suits and garments for all services. The program will yield a family of garments and ensembles, developed for Joint Service mission needs and tested to Joint Service standards. The JSLIST will provide enhanced CB protective ensembles with reduced physiological heat burden and will be generally lightweight and launderable. These garments will also integrate other types of protection. JSLIST is the first of a 3 phase program and supports a variety of Service suit and accessories requirements including:

Enhanced Aircrew Uniform Integrated Battlefield (EAUIB)
Lightweight CB Protective Garment (LWCBG)
Vapor Protective Flame Resistant Undergarment (VPFRU)
Advanced Chemical Protective Garment (ACPG)
Groundcrew Ensemble (GCE)

There are five JSLIST clothing item requirements: 1) overgarment, 2) duty uniform, 3) undergarment, 4) boots and 5) gloves. Each of the Services' requirements are incorporated by these five JSLIST requirements.

### **JSLIST Overgarment**

# **Enhanced Aircrew Uniform Integrated Battlefield (EAUIB) (FUE FY97)**

### Rationale:

Army (Requirement) Navy (Interest)

# Key Requirements:

- Provide 12 hours protection (24 desired) against 10 g/m² liquid; 10,000 CT vapor/aerosols
- Provide 30 days field wear (minimum) in all geographical areas
- Retain CB protection after 4 launderings
- Provide flash fire protection (10 watts/cm<sup>2</sup> for 6 seconds)
- Provide lower physiological heat burden and 25% less than the AUIB
- Be compatible with micro climate cooling vest

# Description:

The EAUIB provides protection against all CB agents after laundering and extended periods of non-CB wear. It will be worn by aircrew and aviation ground personnel. It will combine CB and flame protection in a single garment. The EAUIB is a two-piece suit design with an integrated hood compatible with M43 and XM45 series masks and second skins. It may be worn as an overgarment for the duty uniform or as a primary garment over underwear.

# Lightweight Chemical/Biological Protective Garment (LCBPG) (FUE FY97)

#### Rationale:

Army (Requirement)
Navy, Air Force (Interest)

### **Key Requirements:**

- Provide 6 hours protection against 10 g/m<sup>2</sup> liquid; 5000 CT vapor/aerosols
- Provide 7 days field wear (minimum) in all geographical areas (launderability not required)
- Weigh no more than 4 pounds (3 desired)
- Have package volume for size medium no more than 500 in<sup>3</sup> (300 desired)
- Reduce the physiological heat burden of the BDO by at least 20% (30% desired)

# Description:

In test conditions, the LCBPG provided 6 hours of protection against all CB agents after laundering and moderate periods of non-CB wear. The requirement has a trade-off of wear-time and protection-time in order to achieve a lightweight, low-bulk garment for short term, risk-taking missions. The LCBPG will be a two-piece suit design with an

integrated hood compatible with the M40 mask with second skin. It will be worn as an overgarment for the duty uniform or as primary garment over underwear depending upon the environment or mission.

### Advanced Battle Dress Overgarment (ABDO) (FUE FY97)

### Rationale:

Army (Requirement)
Navy, Marine Corps (Interest)

# Key Requirements:

- Provide 24 hours protection against 10 g/m<sup>2</sup> liquid agent; 5000 CT vapor/aerosols
- Provide 30 days field wear (minimum) in all geographical areas
- Retain chemical protection after 4 launderings
- Weigh less than 4 lbs for a size medium-regular, packed garment
- Reduce physiological heat burden currently imposed by BDO

# Description:

The ABDO will provide 24 hour protection after extended wear and laundering. Liners currently are based upon activated carbon technology (carbon beads, thin carbon foam and others). The ABDO will be a two-piece design with an integrated hood compatible with the M40 mask with second skin. It will be worn as an overgarment for the duty uniform or as a primary garment over underwear depending upon the environment and mission.

# **Advanced Chemical Protective Garment (ACPG) (FUE FY97)**

### Rationale:

Navy (Requirement)

### Key Requirements:

- Provide 24 hours protection against 10 g/m<sup>2</sup> liquid agent; 5000 CT vapor/aerosols
- Provide 30 days field wear (minimum) in all geographical areas
- Retain chemical protection after 4 launderings
- Weigh less than 4 lbs for a size medium-regular, packed garment
- Reduce physiological heat burden currently imposed by BDO

# Description:

The ACPG will provide 24 hour protection after 30 days wear time and 4 launderings. Liners currently are based upon various activated carbon technologies (carbon beads, thin carbon foam and others). It will be two-piece suit with an integrated hood compatible with the MCU-2/P mask with second skin. The ACPG will be worn as an overgarment for the duty uniform or as a primary garment over underwear depending upon the environment and mission.

### **JSLIST Undergarment**

# **Vapor Protective Flame Resistant Undergarment (VPFRU) (FUE FY97)**

### Rationale:

Army (Requirement)

Key Requirements: (When worn under the Nomex coveralls)

- Provide 12 hours protection (24 desired) against 10 g/m² liquid; 10,000 CT vapor/ aerosols
- Provide 30 days field wear (minimum) in all geographical areas
- Retain chemical protection after 4 launderings (10 desired)
- Provide flash fire protection (10 watts/cm<sup>2</sup> for 6 seconds)
- Weigh less than 3 pounds (without coveralls)
- Reduce by 20% the physiological heat burden imposed by the CPU worn with coveralls

# Description:

The VPFRU will provide 12 hour protection after extended wear and laundering. It will also offer a reduction for the heat stress burden when compared to the CPU. The VPFRU will be a one or two-piece undergarment with an integral hood compatible with the M42 series mask.

# **Duty Uniform**

### **Groundcrew Ensemble (GCE)**

### Rationale:

Air Force (Requirement)

### Key Requirements.

• Enhance existing capability with lighter, less thermal burdening ensemble

### Description:

The GCE provides chemical protection, from the neck down, to personnel while in an Air Base environment. It provides protection from liquid and vapor hazards while greatly reducing the level of physiological stress encountered with the current battle dress overgarment (BDO). The material, which will be lighter and will provide a reduction in heat stress, will be capable of being laundered and decontaminated.

# CB Protective Firefighter Ensemble (FFEN) Fire Fighter Suit-Combat (FIS-C) Joint CB Protective Firefighter Suit (J-Fire)

# Rationale:

Army, Air Force (Requirement)

# **Key Requirements:**

- Provide 12 hours of CB agent protection against 10 g/m<sup>2</sup> liquid agent
- Provide firefighters CB protection in both structural and crash fire fighting/rescue operations
- Allow firefighters to use mission essential tools and equipment
- Provide resistance to water and all standard fire fighting chemicals (foam, CO<sub>2</sub>, aircraft POL)
- Capable of being donned in 3 minutes or less

### Description:

The ensemble will consist of CB undergarment worn under the standard fire fighting outer garment and used with a switchable filtered/supplied air respiratory system (same as for the Improved TAP ensemble). Four types of CB undergarments are being evaluated, including the J-Fire which is being developed by the Air Force under the JSLIST program and will meet FFEN requirements.

### **JSLIST Boots**

### Multipurpose Overboot (MULO)

#### Rationale:

Army, Air Force, Marine Corps (Requirement) Navy (Interest)

# **Key Requirements:**

- Provide 24 hours protection against 10 g/m² liquid agent as well as environmental protection from water, snow and mud
- Provide 60 days wear in all environments without degradation of protection
- Provide resistance to incidental slashing by POL and self-extinguishing flame resistance
- Capable of being decontaminated to an operationally safe level using standard decontaminants

### Description:

The MULO is a joint service program under the auspices of the JSLIST program. It will be made of an elastomer blend and will be produced by injection molding. It will be designed for wear over the combat boot, jungle boot and intermediate cold/wet boot. The MULO will be more durable, lighter weight and will provide more protection than the

GVO/BVO. The sole will be designed to provide traction on various surfaces including dirt and metal.

### **JSLIST Gloves (JSLIST P3I)**

### **Improved CB Protective Glove**

### Rationale:

Army (Requirement)
Navy, Air Force, Marine Corps (Interest)

### Key Requirements:

- Provide 24 hours protection against 10 g/m<sup>2</sup> liquid agent
- Provide protection against POL and standard decontaminants
- Provide self-extinguishing flame resistance
- Provide 15 days wear durability in all environments without degradation of protection
- Provide dexterity equal to or better than the standard 14 and 25 mil butyl gloves

# Description:

The Improved CB Protective Glove will be a joint service program under the auspices of the JSLIST program. Candidate materials include a flame retardant (FR) butyl rubber; polyepichlorohydrin/FR butyl rubber; and an experimental, permeable material.

# **Specialty Suits**

# **Improved Toxicological Agent Protective (I-TAP)**

### Rationale:

Army, Air Force (*i.e.*, EOD Ensemble) (Requirement) Navy, Marine Corps (Interest)

### Key Requirements:

- Provide 4 hours liquid chemical agent protection at 10 g/m<sup>2</sup>
- Provide wear durability equal to current TAP suit
- Be compatible with M40 Special Purpose Mask and Hood and TAP boots and gloves
- Provide a 1-hour supplied air bottle with capability for switching to filtered air respirator
- Be light in color to reduce solar load and offer a universal cooling system pass through

# Description:

The I-TAP will enhance existing capabilities with a lighter, less thermal burdening ensemble. The fabric will be self-extinguishing and decontaminated after a minimum 5 reuses. The I-TAP will support short term entry and life saving operations requiring supplied air. The respiratory system will weigh under 25 lbs., and air bottles will be

replaceable while the suit is worn. The I-TAP will have an improved design with seals at the neck and cuffs to eliminate bellows effect. The suit will have a voicemitter and a pass through for cooling systems.

# **Collective Protection Equipment**

# Advanced Integrated Collective Protection System (AICPS) for Vehicles, Vans and Shelters (VVS)

### Rationale:

Army (Requirement) Navy, Marine Corps (Interest)

### Key Requirements:

- Integral NBC filtration power and environmental control for vehicles, vans and shelters
- Minimize filter changes and overall system logistics burden
- Reduced size, weight and energy requirements

# Description:

The AICPS which uses deep-bed carbon, is an NBC filtration system integrated with an environmental control unit and auxiliary power unit for combat systems. The combined components provide overall size, weight and energy reduction, and eliminate the need for additional electrical power for the host system.

# **Improved Shipboard Collective Protection System**

### Rationale:

Navy (Service-Unique Requirement)

### **Key Requirements:**

• Integrated CB hardening

### Description:

The ICPS will increase the shipboard filter life of the Shipboard Collective Protection System (from the current one or two years) to at least a three year service life, providing millions of dollars of savings in life cycle costs.